

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. *(canceled)*

2. (previously presented) The method as claimed in claim 4, wherein the liquid atomizer is a rotary atomizing element.

3. *(canceled)*

4. **(currently amended)** A spray coating method, comprising the steps of:
spraying a coating liquid from a spray system through a liquid atomizer in the form of an irrotational nozzle or in the form of a rotary atomizing element onto an object to be coated; and
cooling at least one component of the spray system, where the coating liquid may deposit on said component and cure on it, by a fluid, cooled coolant that is fed to said component during said spraying; ~~in order that~~

wherein

the cooling of said component is performed to an extent sufficient to reduce ~~shall reduce~~ or prevent the adhesion and/or the drying rate and the layering of the coating liquid on a surface of said component;

~~wherein~~

a compressed gas is used as the coolant; and

the compressed gas is blown onto a surface region of the component to be cooled, where the

coating liquid does not stream over said surface region.

5-6. (canceled)

7. (currently amended) The system as claimed in ~~claim 9~~ claim 10, wherein the liquid atomizer is a rotary atomizing element.

8-9. (canceled)

10. (currently amended) A spray system for spraying coating liquids, said system comprising:

a liquid atomizer in the form of an irrotational nozzle or in the form of a rotating rotary atomizing element for spraying a coating liquid onto an object to be coated; and

a cooling unit for cooling a component of the spray system by means of a fluid, cooled coolant during spray coating, where the coating liquid may deposit and cure on said component, the cooling of said component reducing or preventing both the coating liquid's adhesion to and/or the drying rate on and its layering on a surface of said component;

wherein

the coolant is a compressed gas;

the cooling unit is fitted with a compressed-gas discharge to blow the cooled compressed gas onto a surface region of the component to be cooled, where the coating liquid does not stream over said surface region; and

the system further comprises ~~The system as claimed in claim 9, further comprising a~~ cooling element of the cooling unit to cool the compressed gas.

11. (currently amended) A method of spraying a coating liquid onto an object to be coated, said method comprising the steps of:

providing a spray discharging system having a rotary atomizer for atomizing said coating liquid, said atomizer having a rear end and a front end, said atomizer longitudinally extending from the rear end to the front end and towards the object, said atomizer having an external surface, an internal surface that defines an inner passage for the coating liquid, and an atomizing edge in the front end and at the boundary of the internal and external surfaces;

atomizing and spraying the coating liquid from the atomizing edge onto the object; ~~object;~~
~~and~~

cooling said atomizer during said atomizing and spraying step by a cooling medium deposited on the external surface of said atomizer; and

cooling the cooling medium prior to depositing said cooling medium onto the external surface of said atomizer.

12. **(currently amended)** The method of claim 11, wherein said cooling step comprises indirectly cooling said atomizing edge, by depositing said cooling medium on the external surface of said atomizer in a region other than a vicinity of said atomizing edge, to an extent sufficient to prevent ~~thereby preventing or delaying~~ precipitation of the coating liquid on the external surface in the vicinity of said atomizing edge during said atomizing and spraying step.

13. **(currently amended)** The method of claim 11, wherein said cooling step comprises directly depositing the cooling medium on the rear end of said atomizer in a region rearwardly, longitudinally spaced from said atomizing edge.

14. **(currently amended)** The method of claim 11, wherein said cooling step comprises directly depositing the cooling medium on the external surface of said atomizer in a region that is not accessible to by the coating liquid during said atomizing and spraying.

15. **(previously presented)** The method of claim 11, wherein said coating liquid is

water-based paint.

16. **(currently amended)** The method of claim 11, wherein
said atomizer is a rotary, bell-shaped atomizing element having a front end portion flared towards the object and a rear end portion extending rearwardly from a region of said front end portion, which region has a smallest diameter of said front end portion, and
said cooling medium is directly deposited on said rear end portion of the atomizing element.

17. (previously presented) The method of claim 11, wherein said cooling medium is a compressed gas;
said method further comprising:
providing a cooling element; and
cooling the compressed gas, by said cooling element, prior to depositing said compressed gas onto the external surface of said atomizer.

18. (previously presented) The method of claim 16, wherein said cooling medium is cooled compressed air.

19. (previously presented) A spray system for coating an object with a coating liquid, said system comprising:
a rotary liquid atomizer for atomizing and spraying the coating liquid onto the object, said atomizer having longitudinally spaced rear and front end portions, said atomizer having an external surface, an internal surface that defines an inner passage for the coating liquid, and an atomizing edge in the front end portion and at the boundary of the internal and external surfaces from which edge the coating liquid is to be dispensed as a spray;
a cooling unit having a coolant line fitted with at least one cooling medium outlet pointing at the rear end portion of said atomizer in order to deposit a cooling medium onto the external

surface of said atomizer, thereby preventing or delaying precipitation of the coating liquid on said external surface in a vicinity of said atomizing edge.

20. (previously presented) The system of claim 19, wherein
the cooling medium outlet of said cooling unit points at a location on the external surface of said rear end portion, which location is rearwardly, longitudinally spaced from said vicinity of said atomizing edge; and
the coolant line is located outside said inner passage.

21. (previously presented) The system of claim 19, further comprising said cooling medium, which is a compressed gas, wherein said cooling unit includes
a blower for blowing said compressed gas onto said atomizer;
a gas reservoir; and
a cooling element for receiving the compressed gas from said gas reservoir, cooling said compressed gas and delivering said cooled, compressed gas to said blower.

22. (previously presented) The system of claim 19, wherein further comprising said cooling medium which is compressed air.

23. (previously presented) The system of claim 19, wherein said cooling medium outlet includes at least one polygonal apertures or slit nozzles.

24. **(currently amended)** The method as claimed in claim 4, further comprising cooling the compressed gas, by a cooling element, prior to blowing said cooled, compressed gas onto said surface region of the component to be cooled.

25. (previously presented) The method as claimed in claim 11, wherein said cooling

comprises blowing a compressed gas onto the external surface, without affecting the shape of a spray jet of said coating liquid being sprayed from the atomizing edge onto the object.

26. (previously presented) The method as claimed in claim 17, further comprising supplying, besides said compressed gas, shaping air; and shaping a spray jet of said coating liquid, which is being sprayed from the atomizing edge onto the object, with said shaping air.

27. (previously presented) The method as claimed in claim 26, further comprising cooling said shaping air, with a cooling unit, prior to said shaping.

28. **(currently amended)** A method of spraying a coating liquid onto an object to be coated, said method comprising the steps of:

providing a spray discharging system having a rotary atomizer for atomizing said coating liquid, said atomizer having a rear end and a front end, said atomizer longitudinally extending from the rear end to the front end and towards the object, said atomizer having an external surface, an internal surface that defines an inner passage for the coating liquid, and an atomizing edge in the front end and at the boundary of the internal and external surfaces;

atomizing and spraying the coating liquid from the atomizing edge onto the object;

cooling said atomizer during said atomizing and spraying step by a cooling medium deposited on the external surface of said atomizer;

~~The method as claimed in claim 11, further comprising~~

supplying to said atomizer, besides said cooling medium, at least one of (a) shaping air for shaping a spray jet of said coating liquid being sprayed from the atomizing edge onto the object, (b) bearing air for supporting the atomizer which is a rotary atomizing element, (c) turbine air for rotating the rotary atomizing element, and (d) braking air for decelerating the rotary atomizing element;

providing a cooling unit; and
cooling said at least one of shaping air, bearing air, turbine air and braking air with said cooling unit prior to said supplying.

29. (previously presented) The system of claim 19, wherein
said atomizer is a rotary, bell-shaped atomizing element having a front end portion flared towards the object and a rear end portion extending rearwardly from a rear region of said front end portion, which rear region has a smallest diameter of said front end portion, and
the cooling medium outlet of said cooling unit points at said rear end portion of the atomizing element.

30. (previously presented) The system of claim 19, wherein the cooling medium outlet of said cooling unit points at a region on the external surface of said atomizer, which region is not accessible to by the coating liquid during said atomizing and spraying, thereby indirectly cooling the atomizing edge without affecting the shape of the spray.

31. (previously presented) The system of claim 19, further comprising a shaping air outlet pointing at the vicinity of said atomizing edge for discharging compressed air to shape said spray, said shaping air outlet and said cooling medium outlet being longitudinally spaced from each other.

32. **(new)** The system of claim 19, wherein said cooling unit further includes
a reservoir of said cooling medium; and
a cooling cartridge having an inlet coupled to said reservoir to receive the cooling medium from said reservoir, and an outlet coupled to said coolant line for cooling said cooling medium before delivering said cooled, cooling medium to said coolant line;
wherein said at least one cooling medium outlet is formed in the coolant line to be spaced

from the rear end portion of said atomizer by a distance shorter than a length of said coolant line between the outlet of the cooling cartridge and said at least one cooling medium outlet.

33. **(new)** The system of claim 19, wherein said at least one cooling medium outlet is positioned adjacent the rear end portion of said atomizer so as to directly deposit the cooling medium onto the external surface of said rear end portion.

34. **(new)** The method of claim 4, wherein the cooling of said component is performed to an extent sufficient to prevent the adhesion and/or the layering of the coating liquid on said surface of said component.